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Vol. I.

No. 8



PHONOGRAPH

A MONTHLY MAGAZINE

DEVOTED TO

THE SCIENCE OF SOUND . .

AND

.. RECORDING OF SPEECH.

PUBLISHED BY
THE NATIONAL PHONOGRAPH PUB. CO., L'D.
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AND OF THE SOLE LICENSEE OF
The American Graphophone Co

Philadelphia, October 7th, 1890. 189

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By

J. J. Camp.

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THE PHONOGRAM.

THE OFFICIAL ORGAN OF THE PHONOGRAPH COMPANIES OF THE UNITED STATES.

VOL. 1.

AUGUST, 1891.

No. 8.

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Chicago Cen'l	Chicago, Ill.	Cook County, Ill.
Eastern Penn'a	Philadelphia, Penn.	Eastern part of State of Penn'vania.
Florida	Jacksonville, Fla.	Florida.
Georgia	Atlanta, Ga.	Georgia.
Iowa	Sioux City, Iowa.	Iowa.
Indiana State Agency	Indianapolis, Ind.	E. R. Magie, Ag't, "When" Block.
Kansas Phonograph Co.	Topeka, Kan.	Kansas and New Mexico.
Kentucky	Louisville, Ky.	Kentucky.
Louisiana	New Orleans, La.	Louisiana.
Michigan	Detroit, Mich.	Michigan.
Missouri	St. Louis, Mo.	Missouri, Arkansas, and Indian Ter.
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New England	Boston, Mass.	New England States.
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Nebraska	Omaha, Neb.	Eastern part of State of Nebraska.
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ADVERTISEMENTS.

THE PHONOGRAM, having special facilities in its circulation through the vast commercial system occupied by the Phonograph, Telephone, and other Electrical Devices, presents an exceptionally valuable advertising medium. The rates are reasonable and will be furnished on application.

CORRESPONDENCE

relating to the Phonograph, Typewriter, or Electricity, in any of their practical applications, is cordially invited, and the coöperation of all electrical thinkers and workers earnestly desired. Clear, concise, well-written articles are especially welcome; and communications, views, news items, local newspaper clippings, or any information likely to interest electricians, will be thankfully received and cheerfully acknowledged.

HOW TO PUT THE PHONOGRAPH ON A SECURE BASIS.

The American citizen is generally the architect of his own fortune, since the heirs to large estates constitute a small minority in our midst; therefore the larger number of our countrymen are called upon early in life to meet and solve the problem of "how to make money." Even the "bloated bondholder," who is able to write three numerals before the formidable array of figures which designate the value of his treasures, is forced to give the greater part of his attention to this question, as it underlies the preservation of all he possesses.

A subject of such general interest to intelligent people must, in the course of time, be pretty well

understood; yet there will always remain a certain proportion of the human race who form erroneous views as to the manner and means of securing fortune, and from this cause they become the prey of disappointment or despair. These have a faculty of hiding their lights under a bushel—of sitting still and waiting for the "blind goddess" to pour a shower of gold into their laps. It is needless to say that the cause of their failure lies at their own doors; they do not exercise the faculties of observation, research, investigation and comparison given to them in part for the purpose of acquiring means.

Now we have Scriptural authority recommending our lights to be placed on a hill, whence their rays may be dispensed for the benefit of others, the application of which is intended for our particular organization, *i. e.*, the Phonographic Republic.

Once upon a time there lived in the United States a person who rose from a state of poverty to a position of great wealth and independence without the aid of hereditary influence, political advancement, collegiate education, or any other force than those faculties which enable one to study mankind and his wants. He discovered that people liked to learn natural history in an easy way, by having it brought to them; that curiosities, monstrosities—in fine, any spectacular or diverting entertainment—was sure to please and be well paid for. He learned that to draw large audiences, and thus secure a copious return of specie, he must make his coming widely known, and he contrived a plan for accomplishing this which has become a model in its way to the world at large. Not only did his advertisements appear in all the principal papers and periodicals of this country, but they crossed the ocean and were blazoned in other continents.

His powers of observation showed him that to have a thing purchased you must make it widely known.

Now, in the Phonographic Republic there are companies in various conditions: some who can sit upon a pedestal and wait for the world to make the first approach to them; others, perhaps, just entering upon a business career, who scorn inactivity and burn for success. For the latter there is but one road which will carry them on to the goal they seek; and that is to make known to the public the full merits and uses of their instrument, and not only the machine itself, but every accessory belonging to it—musical cylinders, the best batteries for running the phonograph, nickel-in-the-slot cases, etc.

Advertise these articles in *THE PHONOGRAM*; this magazine reaches points which even the most costly journals do not find; and the reason it is widely disseminated is because the companies are far apart, and *THE PHONOGRAM* is so reasonable in price as to bring it within the power of almost every one to obtain. Besides, it contains articles on current events and scientific discoveries which render it of interest to every one.

A CORRECTION.

We are officially authorized to correct a mistake in the comments made in the last issue of *THE PHONOGRAM* regarding the companies who had applied for and received permission to sell phonographs. The Eastern Pennsylvania Phonograph Company applied for the permission through their vice-president, the late Mr. L. Halsey Williams, but since receiving consent they have determined not to avail themselves of it, therefore the machines are not for sale in that territory.

We herein publish an amended list of companies selling machines—the Columbia, Wisconsin, Kentucky, Pacific, New England, Louisiana, Montana, and the Missouri; also the Indiana and Canada agencies.

Several other companies have recently written for information as to the terms and restrictions, with the view of requesting the same privilege, which of course will be granted to any local company wishing it.

A LOCAL AGENTS' PHONOGRAM.

Nothing could be more practical and valuable in a business way than the contribution of "A Local Agent." The points he makes are strong, his illustrations are telling, and he has a keen insight into human nature. It is much to be desired that *THE PHONOGRAM* should secure from various quarters writers so well informed and so faithful to the interests of the instrument they represent.

THE PHONOGRAPH OF THE PRESENT AND FUTURE.

An interesting writer, who is doubtless an electrician, possibly a learned scientist, contributes to the columns of the *Electrical Review* for August his lucubrations on the phonograph of the present and that of the future. He says that a phonographic book is sure to come which will be of such general value, especially to singers, musicians, the blind, and invalids, that should a charitable man desire an opportunity to prove his title to the cognomen of philanthropist he can accomplish it in no better way than by establishing a "Society for the Perfection of the Phonograph."

The same writer, who is evidently not a sensationalist, says in another notice of the same instrument: "The phonograph must still be regarded as the most interesting of Edison's inventions, and it is safe to say that some of its wonderful possibilities have not yet entered into the mind of even the great inventor himself. It will be used in the near future, in connection with the telephone, for new purposes, and will work a revolution in telephony."

NATIONAL ELECTRIC LIGHT CONVENTION IN MONTREAL.

We lay before our readers a full programme of the arrangements made for holding the meeting of the National Electric Light Association at Montreal, Canada, on September 7th. As the August number of this magazine will reach our patrons before that date, we lay before them the principal features of this programme, which intending visitors will find useful.

1st. Special freight rates have been granted by Canadian railroads by which exhibitors are obliged to pay freight only *one way*, provided the goods remain the property of the original owner.

2d. Persons who contemplate attending the convention can obtain information on matters relating to transportation by addressing the following gentlemen, appointed members of a committee for that purpose:

George F. Porter, Girard Building, Philadelphia; R. D. McGonigle, Pittsburg; W. A. Kreidler, *Western Electrician*, Chicago; E. R. Weeks, Kansas City; J. I. Ayer, St. Louis; A. C. Shaw, *Electrical Engineer*, Boston; C. O. Baker, 136 Liberty Street, New York.

The work of the convention will be transacted under the guidance of committees presided over by prominent persons.

The formal opening of the exhibition will be made by the Governor-General of Canada, who

also heads the Reception Committee. An address of welcome will be delivered by His Worship the Mayor of Montreal.

On the various committees are found the names of the most distinguished citizens of Canada—the nobility, the judiciary, the parliament, the courts, finance, commerce—in fine, citizens of all worthy occupations and professions.

Various excursions will be offered to visitors on the grand rivers and among the beautiful and historical scenery, and special entertainment to ladies.

A WELL-MERITED RECOGNITION.

The article furnished us by Mr. R. T. Haines, Secretary and Treasurer of the New York Phonograph Company, sent to him by Mr. Lee H. Smith, Vice-President of the World's Dispensary, of Buffalo, N. Y., is a most startling and telling evidence of the enterprise and activity displayed by a wide-awake business corporation, which, though conservative in its mode of doing business, is yet alert to all labor-saving improvements.

The figures given by them showing the saving in their present as compared to the old methods are sufficient to make clear to the dullest the saving in time and money accomplished by the use of the phonograph.

We ask the business public not to be blind to their interests, but to give the phonograph a trial. Do not pronounce upon it beforehand, do not take it for granted that there are difficulties in the way, but use it freely, and we predict, like the genial vice-president of the World's Dispensary, you will add your name to the "innumerable army of professional and business men who will gratefully acknowledge the invention of the phonograph."

SUITS INSTITUTED IN CANADA.

The North American Phonograph Company, of New York, have commenced legal proceedings against every Edison phonograph now in Canada that has been obtained under an American lease. It is understood that a number of persons are operating the phonograph illegally, and under the terms of the lease are subject to seizure by the company, and the lease canceled.

A GENERAL AWAKENING OF THE PUBLIC TO THE PRACTICAL USES OF THE PHONOGRAPH.

We have received a copy of *Club Life*, a spicy, wide-awake paper, published in the metropolis of the West, Chicago. The fact that the people of the West are more alert than their Eastern neighbors, especially in acquiring a knowledge of labor-saving mechanism, has long been demonstrated, and from the pages of this journal we have fresh proof that while the slower East is pondering the construction and efficiency of new inventions in that line, the West has tested and put them to various practical uses.

Experimenting with the phonograph, the printers of *Club Life* finally learned to use this instrument instead of type-written manuscript, setting their type as it delivers or enunciates matter, and of course regulating the delivery to suit their convenience. Our readers are requested to glance over the article appearing in this issue, from which they will learn the result of these experiments. Our enterprising friends in this section should try the phonograph in this branch of service. We believe that if, following the example of *Club Life*, they will employ the phonograph in printing-offices, the methods of these establishments will be revolutionized.

Surely the type-setter will bless the dawn of the new day when this wonderful machine, standing at his side, will pour into his ear with distinct utterance the matter intended for publication, which he can reproduce without the trouble and loss of time involved in referring to manuscripts—a process doubly tedious when the penmanship is faulty.

EMILE REYNIER'S ELASTIC ACCUMULATOR.

Special attention is called to the advertisement of the ELASTIC ACCUMULATOR, invented by Mr. Emile Reynier, of Paris, France, in this issue of THE PHONOGRAM, the patent rights of which are for sale in this country. Mr. Reynier died very suddenly in January last, just as he had completed some improvements on this his latest invention. A full account of this battery and its superiority over the accumulators now in use is given in the February issue of THE PHONOGRAM, copies of which can be procured at the publication office.



FACTS AND FIGURES FOR BUSINESS MEN.



ABOUT the middle of the year 1889 the great World Dispensary Medical Association, of Buffalo, N. Y., rented two phonographs for use in their establishment. Since that time there have been many improvements made upon the phonograph, and this institution has added, month by month, until in less than two years from the time the first machines were installed, they had fourteen phonographs in daily operation, with the result shown in the following correspondence and figures kindly furnished us by the courteous Vice-President, Dr. Lee H. Smith, who has since added several more phonographs to still further facilitate their large business.

RICHARD TOWNLEY HAINES, Esq.,
257 Fifth Avenue, New York City.

Dear Sir:

I send you a detailed statement of the expense of running phonographs as compared with stenography, and also a little note of experience in reference to the use of that admirable instrument.

Sincerely yours,

LEE H. SMITH,
Vice-President World's Dispensary Medical Association.

WORLD'S DISPENSARY AND INVALIDS' HOTEL.

BUFFALO, N. Y., June 3, 1891.

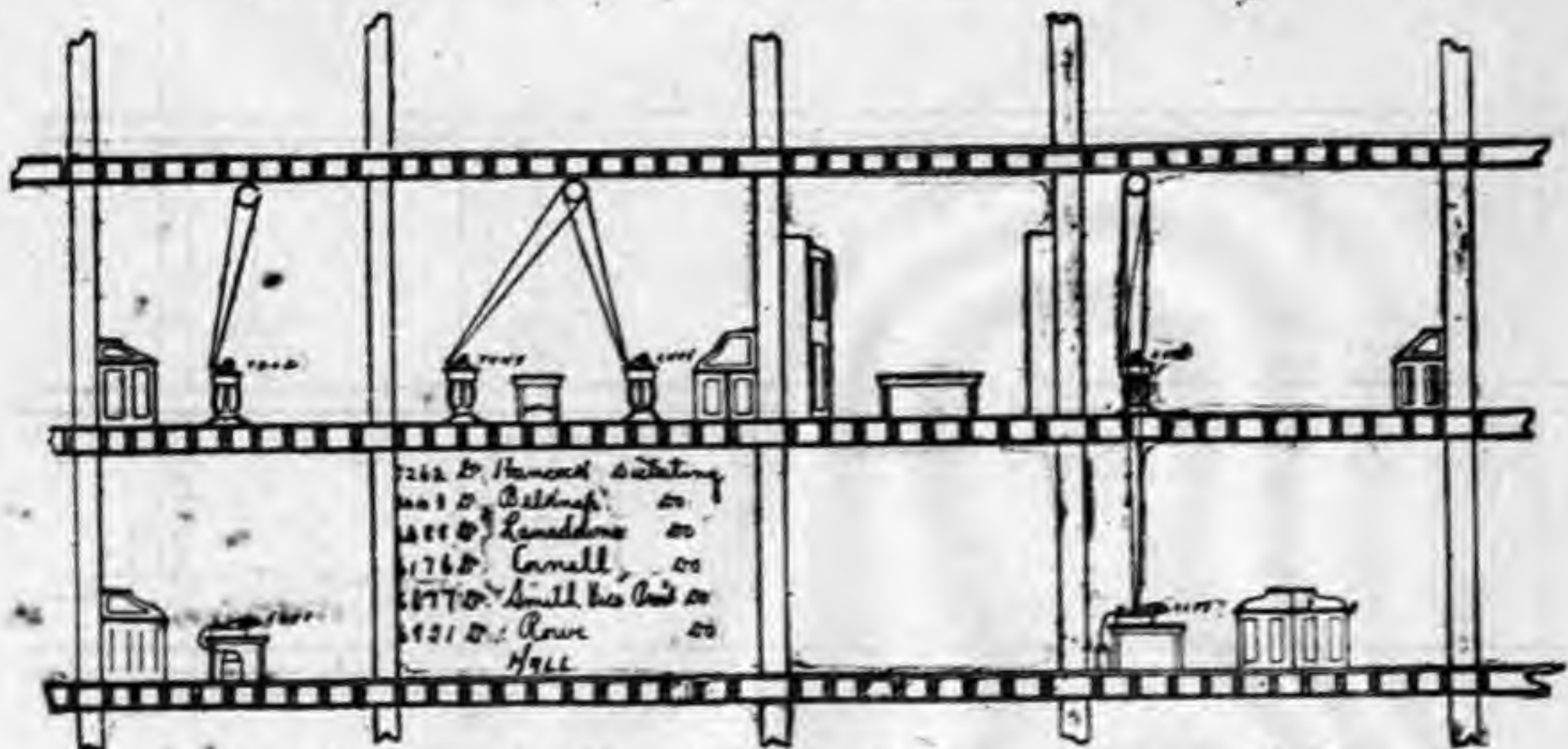
An individual owes a debt of gratitude to the inventor who places him in possession of any agency by which his work is rendered more agreeable and his sphere of usefulness enlarged.

Such a debt I feel we owe to the inventor of the phonograph and to the New York

Phonograph Company, which has placed us in possession of a well-nigh invaluable instrument. By it the arduous duties of a correspondent have been wonderfully decreased, and opportunity given for the devotion to other duties of an amount of time that was, prior to the introduction of the phonograph, an impossibility.

In this I speak the unanimous opinion of twelve or fourteen of my co-laborers who have found in the phonograph an instrument of precision that has shortened their work and enlarged their sphere of usefulness, and it is in this particular respect I would place the very greatest saving and value of the phonograph. For dictation it is immeasurably better than any stenographer can be, inasmuch as it is ever at hand, certain in its grasp of the sentence, and has been found, after a thorough trial, far more accurate. The saving of time to busy humanity must prove of incalculable value.

But there is another and more readily figured benefit from the phonograph. In our hands a certain number have replaced a certain number of stenographers, and have enabled us, with the force no greater, and with one that, at the beginning in the use of the phonograph, was practically uneducated in type-writing, to do an amount of work



NO. 1.—SECTIONAL VIEW INVALIDS' HOTEL, BUFFALO, N. Y.

equal to that done by a large number of stenographers, and at a greatly reduced expense. The reason for this is evident. The stenographer must lose a certain amount of time in taking his notes, and the transcription of the text from these notes may be extremely difficult—particularly if he is taking the report of a rapid talker, and is not faster than the average stenographer. A type-writer using the phonograph has no difficulty in catching the sentence given. He does not spend time in deciphering notes. The ear becomes expert in the use of technical terms (and there can be no class of terms more technical than those used in medicine); the ear does a share of the work; the labor is divided with the eyes, and the phonograph type-writer is enabled to do more than a stenographer of the same speed upon the type-writer; and we have found that the type-writer using the phonograph must excel, in the amount of work accomplished, the stenographer who has the same speed in type-writing. This is the test of comparative value—the amount of work accomplished—while their comparative cost in cash is from one third to one half less for phonograph type-writing.

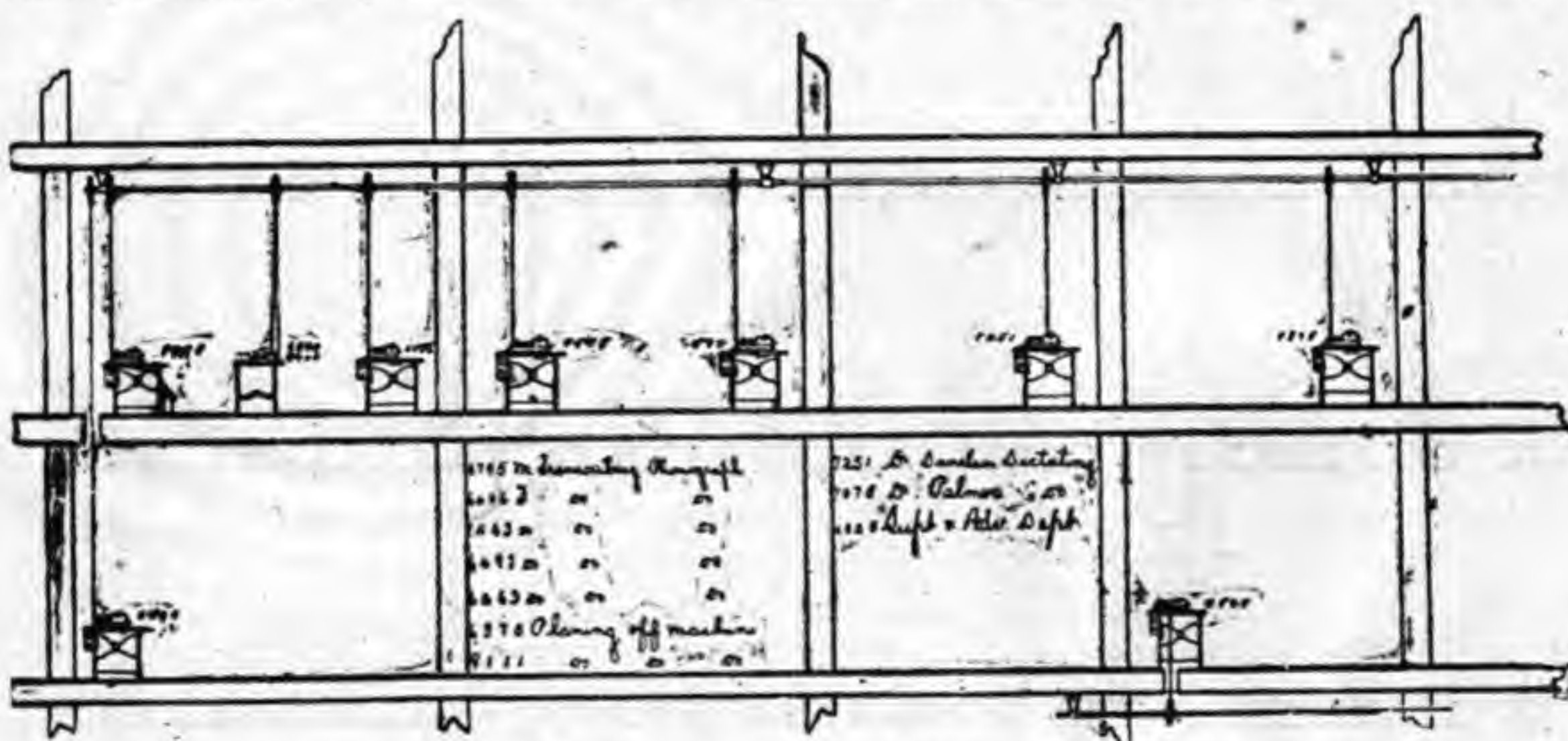
At first it was against my individual preference that I began the use of the phono-

graph instead of employing a stenographer, as had been my custom for the previous ten years, but with experience I became satisfied of the superior utility of the phonograph, and induced others of our faculty to give it a trial, and the result is that none of them would again have recourse to the stenographer, if it were a question of individual preference. We all feel that we can do more work, and do it to better advantage, by means of the phonograph than we can by employment of the stenographer.

In fact, the phonograph is a silent and perfect stenographer, an ideal, as it were, ever at our side, ready for business, with note-book open, with no demurs or troublesome symptoms whatever, as well as requiring no room, nor requiring hours of rest and recreation.

Another agreeable fact that we have experienced in the introduction of this machine is one that we have never before experienced with patents, namely, a perfectly reliable attendance upon, and care, of the machine itself.

With all other new inventions introduced we have had trouble with the agencies that placed them in our office. The telephone, for example, was for years not kept



No. 2.—SECTIONAL VIEW INVALIDS' HOTEL, BUFFALO, N. Y.

properly in constant good repair; and even now, in case of injury, its repair is comparatively slow, and has given us much annoyance. With the phonograph, however, owing to the business-like attention given by the agent in Buffalo, we have had no such trouble. The repair of any imperfection or breakage has been immediate, and the usefulness of the machine has not been foregone for longer than sufficient time for the agent to appear and put it in shape. It is one of the most satisfactory appliances ever introduced into our institution. Its mechanism is so simple and its parts so well made, that the one upon my desk has required attention but once for the past five months, and then a few moments' work put it in perfect shape, and it has continued to give full satisfaction.

The employment of steady power from a line of shafting driven by an engine has given us perfect reproductions, with sixty-eight revolutions of the wax cylinders per minute. The new storage battery, furnished with two additional machines, not supplied from lines of shafting and regular engine power, has been found to be satisfactory and comparatively inexpensive.

in position, and then talk into the mouth-piece in your ordinary tone, as if you were talking to a stenographer.

The sound waves—vibrations of the air created by the voice—cause the diaphragm to vibrate, and the needle to vary its cutting in the wax.

Thus the sound is recorded by the needle upon the wax and cylinder. Under the microscope the fine groove in the wax shows great irregularities; it goes deeper and shallower; shows long dashes and irregular dots; however that may be, a faithful record of the sound is there, and it can be reproduced immediately, or years hence.

A strange feature of this sound record is this: that a skilled operator can, by way of experiment, dispense entirely with the speaking-tube, diaphragm and receiving-tool, and by holding one end of a sharp-pointed pencil, for instance, between the teeth, and resting the point on the wax, record the sound of the voice on the cylinder nearly as accurately as with the perfect machine.

Having dictated a letter, or several letters, you surrender the instrument to a clerk, if you wish, or slip off the wax cylinder (phonograph-blank, Mr. Edison calls it), and hand it over to him to place on another instrument, while you go on dictating other letters on a fresh blank.

In place of the speaking-tube you can adjust to the diaphragm the forked piece of rubber tubing described at the outset, and place the tips to your ears. A little wire spring will keep them there, or a head-gear may hold them in place, as the telephone transmitters are held to the head of the operators in an exchange.

And, by the way, the office of the speaking-tube and the forked rubber tubing is the same as that of any ordinary speaking-tube. To convey the sound you desire, confine its vibrations so that they will not be diffused over a large space, and exclude all other sounds.

The machine will be set in motion as be-

fore, and the needle, following in the groove, will cause the diaphragm to vibrate. The operation is the reverse of the other. In the first case, the sound-waves caused the diaphragm to vibrate, and to operate the needle; in this, the needle, following in the groove, will cause the diaphragm to vibrate and create sound-waves.

These sound-waves, or vibrations of the air, being confined in the rubber tube, will reach the ear, and, in plain English, will be turned into the exact sounds that were originally delivered into the speaking-tube.

Thus the letter is repeated into the ear of the corresponding clerk, and he writes it out on a type-writer. He can run off a sentence or two and stop the phonograph, if he pleases, while he writes them out, by simply pressing upon a lever and disengaging the sliding arm from the diaphragm, and then go on at his convenience. He can run it back, or the reverse, and repeat as much or as little as he pleases, or he may repeat the whole if he wants to assure himself that he has understood the record correctly.

This is the cold, practical use of the phonograph, and that it is really practical is demonstrated by the fact that all of Mr. Edison's correspondence is done in this way, and has been for some time, and that of hundreds of business houses throughout the land.

GREETINGS FROM CARDINAL TO CARDINAL.

The genial manager of the Edison United Phonograph Company delivered in person the message intrusted to him by Cardinal Manning, of England, to Cardinal Gibbons of the United States. The message, when reproduced from the phonograph cylinder, read as follows:

"YOUR EMINENCE,—The Catholic Church in England sends its greetings to you and to the Catholic Church in America, and to all the citizens of the United

States, and hopes that we may always be of one heart and one mind, and become one fold of the Shepherd."

"HENRY EDWARD,
"CARDINAL ARCHBISHOP."

Cardinal Gibbons asked that the message be repeated several times, and then said to Mr. Moriarty: "You do not know, sir, how much I feel my indebtedness to you, not alone for bringing me the message of Cardinal Manning, beautiful as it is, but your bringing to me his voice; and for Cardinal Manning, dear sir, you can not imagine my esteem and affection."

Cardinal Gibbons spoke into the phonograph a reciprocal message of greeting and good wishes to the great English Cardinal for the unity of all the peoples. He also sent a message to the Holy Father. Mr. Moriarty will deliver these in person.

ACTRESSES AND THE PHONOGRAPH.



ONE of the first things that will strike the intelligent actor or actress, after listening to the reproduction of his or her own voice by the phonograph, is that this wonderful machine reveals every imperfection and blemish of the voice itself. This was the first observation of Miss Georgie Cayvan after she had recited some of her speeches from "The Charity Ball." She discovered that there was what she described as a "tired" expression in her voice, and it gave her the first intimation she had ever received of this blemish, which, she said in conversation with the writer a few days ago, she has since observed several times. It is a well-known fact that no person can recognize his own

voice, and possibly for that reason no person can recognize slight defects in his own voice. When reproduced by the phonograph, however, one is listening, as it were, to somebody else, and acting as a critic, and the slightest defect is perceptible. "What an excellent aid to study!" exclaimed Miss Cayvan; and she was right. Many other artists have recognized this fact, and phonographs are becoming more and more common in the homes of actors and actresses. Miss Cayvan showed no nervousness in speaking into the tube, but she preferred to be quite alone in the room while doing it. Listeners seemed to disconcert her somewhat on her first trial, but possibly that was because they were behind and around her instead of facing her, as an audience would have been.

The best female singer in the presence of the phonograph, so far as the collector's experience goes, is Miss Lillian Russell, of the Casino. Miss Russell sung in her own parlor one afternoon, and several excellent records were secured. Although she had never experimented with the phonograph before, she seemed to know by instinct just what was necessary to produce the best results. It is a very difficult thing to get a good record of a female singer. The high, loud notes are liable to jar the delicate diaphragm too harshly, and in that case the reproduction of these notes is apt to be a discordant sound that is unpleasant to the ear, and destroys the entire effect of the harmony. The only way to avoid this is for the singer to move further away from the instrument when these notes are reached, and it is very difficult to make the ordinary artist understand and act upon this. Miss Russell's first two attempts were partial failures on this account, but she learned the lesson quickly. The "Saber Song" and "Dit Lui," from "The Grand Duchess," and "Ah, ma Charmante," by Sir Arthur Sullivan, she placed upon the cylinders in perfect harmony, and the effect of the reproduction is almost electric. Her rich, clear voice is perfectly photographed on the enduring wax, and it rings forth as strong and powerful, though possibly not so loudly, as it does on the stage of the Casino. Her songs are gems in the collection. She was perfectly collected before the phonograph, and sung with as much ease and self-possession as if entertaining a party of her own friends.

A FAMOUS AND ARTISTIC WHISTLER.

The accompanying portrait represents Mr. John Y. AtLee, of Washington, D. C., whose artistic whistling is known, through the phonograph, from Maine to Texas, California, Oregon, and even the new State of Washington. Mr. AtLee was the first professional whistler to recognize the value of the phonograph in giving to the world with perfect fidelity the bird-like trills and runs of his art, and for more than a year has kept the Columbia Phonograph Company, whose main office is in Washington, D. C., supplied with twenty of his choicest selections, from whence they have been distributed to every phonograph company in the United



States. So popular is his work that there are few users of the phonograph who have not heard or do not possess an AtLee record, a prominent feature of which is the clear and unmistakable announcement at the beginning of each, in Mr. AtLee's own voice. The accompanist on the piano is Professor Lusby, of the famous United States Marine Band, that furnishes the music for our presidents. The best-known of Mr. AtLee's selections is the "Mocking Bird," in the execution of which he is believed to have no equal. The spoken announcement is preceded by several mocking-bird notes so true to nature as to be positively startling.

DO YOU REALIZE THIS?

Although the phonograph has been in its present perfect mechanical state for more than a year, few yet realize what it is or how marvelous its performances. The piano, a bulky, costly instrument, requiring years of practice for even imperfect mastery, is now found in tens of thousands of homes. The phonograph, which is small, relatively cheap, and can be operated by a child after a single lesson, will give not only the finest piano music, but the best music of the most accomplished musicians on every instrument or combination of in-

struments in existence. And not only instrumental, but vocal music, too, is thus brought to the fortunate possessor of phonographs. The phonograph, in its ability to entertain, is as varied as sound itself.

When the public fully appreciates just what the phonograph accomplishes, the inaccurate, discordant, laboriously executed home-made music of the past will be succeeded, at less expenditure of money and effort, by the finest melodies of the greatest masters.

THE PHONOGRAPH AN ADJUNCT TO THE STENOGRAPHER.

BY HENRY F. GILG.



HE phonograph is now passing through the same stage that has been experienced by all great inventions, and its general adoption is but a question of time. Man is conservative, and it sometimes takes him years to get out of ruts in which he has been traveling. Scientists tell us that the implements of the Stone Age show that our "rude forefathers" required centuries to learn that it was better to fasten the handle to the stone hammer by drilling a hole through it than by fastening the handle around it with thongs. It required considerable urging to get Congress to appropriate enough money to send the never-to-be-forgotten message, "What hath God wrought," over the wires between Baltimore and Washington. Now we have thousands upon thousands of miles of wires throughout the world, and people everywhere think and speak of the same thing at the same time.

The sewing-machine had a great struggle with labor before it was universally adopted. Now it is almost impossible to find a household without one, and all the civilized world is clothed much better and at less cost than could have been possible otherwise.

The telephone fought for a long time to gain a foothold. Now a business house is incomplete without it, and when the wires are down as the result of a severe storm, the subscribers are continually after the Exchange to know how much longer they

will have to wait until the line is in service again.

The type-writer was looked upon as an innovation which would amount to nothing in practical use; all sorts of objections were advanced by both employer and employee. The former that it was too expensive and required too much time to learn to operate it; the latter that he would be compelled to work for less money and would have more work to do. Now there are more than two hundred thousand in use in the United States. A newspaper stated recently that one of the telegraph companies in Pittsburg would require all its operators to learn the type-writer, and in order to encourage them to do so would advance their salaries.

It is needless to enumerate more instances, because all great achievements have passed through the same ordeal, and now the world wonders how it ever did without them. So it will be with the phonograph, "The King of Instruments."

The phonograph consists of a simple lever, to one end of which is attached a recording knife, while the other end is connected with a diaphragm. The diaphragm is sensitive to movements of the air produced by sound, and every motion makes a record on a revolving cylinder of wax. The reproduction is simply a reverse operation. The intensity of sound in the reproduction depends upon the intensity of sound making the record, distance causing the record to be fainter exactly as distance affects the human ear.

The phonograph has been more largely advertised, probably, than any other invention which has ever been brought to the attention of the world; yet all this advertising has failed of its principal object.

Nearly ever one knows what a great source of amusement the instrument is, but comparatively few knew what its practical advantages are. A gentleman who is connected with one of the largest manufacturing concerns in the country, and who is at the head of his profession, and has been before the public in his capacity for nearly thirty-five years, called at the office of the Western Pennsylvania Phonograph Company recently, on business. As is the custom there, the gentleman was shown the practical use of the instrument. He was requested to talk to the phonograph, and dictated a letter which was afterward transcribed on the type-writer, to his great pleasure and astonishment. He remarked that he had not thought such a thing possible, that he had always looked upon the phonograph as a plaything. Numerous other instances could be cited. The necessity for education to the use of the phonograph is thus clearly shown.

Among the mistakes made by the promoters of the phonograph was the assertion that it would do away with stenographers. This is far from the truth, because the machine with brains is yet to be constructed, and such a possibility is very remote; indeed, as remote as the millennium. On the other hand, the instrument will be of great assistance to the stenographer. The stenographic profession is one of the stepping-stones to "something better," and with the aid of the phonograph the "something better" will be the sooner reached. As has been shown by experience, the stenographer is in most establishments closer allied with the interests of the concern than any other of the employees, and, if the term be permissible, is on the "inside track." He passes through the stage of taking dictations, and writes the matter himself, subject to the approval of his principal. His time is taken up largely with the type-writer in transcribing the dictations or in composing the matter himself, while, with the assistance of the phono-

graph, he could dictate to the instrument and have a lesser clerk or the office-boy transcribe it, thereby taking the mechanical part of the work off himself, and saving himself considerable time which could be devoted to more important duties. This would materially aid the stenographer in getting off the "stepping-stone" into the "something better," as it would enable him to use his brains for his employer. The advantage to both employer and stenographer is obvious.

With the phonograph people it is a campaign of education, and the time is not far distant when their efforts will be crowned with success, and the phonograph will step into the field which it is making for itself.

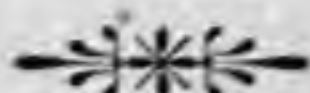
THE PHONOGRAPH OF 1891 AS COMPARED TO THE ORIGINAL MACHINE.

The Edison Phonograph was invented twelve years ago by Mr. Thomas A. Edison. It was only a crude machine, then in its infancy.

The impression that the phonograph is to supersede the amanuensis and stenographer is erroneous. In this line of work it gives the stenographer an opportunity to do his work better and more accurately, consuming, after all, less time than the old system. For the past two years, in both Houses of Congress, the stenographers have read their notes into the machine very rapidly, to be written down afterward by the type-writers, who can take the matter down at their leisure, enabling the shorthand men to go back to their work much sooner than they ever did before. Talk as fast as they may, the machine takes everything with perfect accuracy, and repeats as slowly as may be desired. It is used as a receptacle for messages left by business men when leaving their offices, or by their callers during their absence, and has come into general utility as a recorder of speeches and conversations. The transmission of telephone messages in this connection is one of the many varieties of usefulness of the phonograph. There are now four times as many phonographs in business use as there were twelve months ago.

IT IS A WONDER!

THE PHONOGRAPH AN INVENTION THAT ASTONISHES AND PLEASES THE MORE IT BECOMES KNOWN.



WHAT a wonderful little machine the phonograph is! It was invented quite a number of years ago, but it was not until late years that it reached such perfection as would enable it to be used in a practical and business way. The phonograph as now used is certainly one of the greatest inventions of the age, and one which fills a person with astonishment when the true inwardness of the little machine is fully explained and demonstrated.

Club Life is a happy possessor of two of these instruments which it uses in an entirely novel way for the benefit of its office. One is used in which the matter is dictated; the cylinders are then turned over to the other instrument, which is in the composing-room. The printer then carefully adjusts the reproducer, allowing a little of the speech to evolve at a time. In this manner he sets up the entire paper. It will be noticed that no manuscript is used at all in the editorial department of the paper. This is entirely an invention of the *Club Life* office, and has heretofore not been used in any other publication; but having been so entirely successful with it, there is no doubt but what it will come into general use in this branch of the business.

The phonograph, however, has quite a number of other uses, among which is the dictation of letters for business firms. Dictation is made into the machine on the cylinders prepared for the purpose, and after several letters have been completed

these cylinders are sent to the type-writer, who then copies them off in the usual manner.

Of course it will be readily seen that this saves a vast amount of time, and is especially convenient, inasmuch as the presence of a type-writer is not required at any stage, whereas, in the ordinary run of business, the type-writer must be present whenever the dictation of letters is to take place.

Mr. Edison's machine has now passed the experimental stage, and is in such shape that almost any person can successfully operate it. Besides the business portion of its use, it can be placed in the home circle and afford much amusement. It can readily reproduce singing, whistling, piano playing, quartet singing and other delightful branches of entertainment. A new way of singing into the phonograph, in which manner a quartet is readily heard, has been discovered in the use of one of the *Club Life* machines. The several parts of a quartet are sung into the machine separately, and when finished the harmony is perfect, the sound being as though sung by four different persons, though in reality one singer has done the whole work. This is also an innovation, and will in the future produce remarkable results.

Although the phonograph has been on the market for about two years, it is not as yet in very general use in Chicago, only three hundred of them being rented to business firms. However, as the merits of the little machine are known, the number of them will rapidly increase, and there is no doubt but what in a number of years the phonograph will become as popular as the telephone.

Ordinarily the reproductions of the cylinders are listened to through two rubber

tubes; but these can be done away with, however, and a large funnel placed on the instrument which throws out the sound so that a large room can be readily filled. In this way it affords a great deal of amusement for companies which may be assembled, and this will no doubt be a pleasing way of entertaining during the coming winter, when the card season has about run itself out.

Another use to which the machine will probably be put is that of prompting actors who are perhaps delinquent in their lines. A long rubber tube can be stretched from an instrument on which the part of the comedian, for instance, is duly recorded, this tube communicating to the man's ears, repeating, whenever he shall touch a certain lever by means of a string, the words which he should utter. In this way no actor in the future will ever become confused, for the part is ever ready in his ear and at his command.

The phonograph proper takes up very little room, occupying about a foot in length and about four inches in depth. The motor power, however, takes up considerable space, being of itself quite a wonderful part of the instrument. The force is generated through a storage battery which retains the electricity for about a month, after which time it is replaced by another one.

The cylinders are made of a preparation in which wax is the largest component part, but as to what the other ingredients are Mr. Edison has kept very silent. These cylinders are about one quarter of an inch through the material, and after a certain recording has been done this may be effaced by a patent scraper, which accompanies the machine, and will take off a very thin layer from the top. Thus about forty reproductions may be made before a cylinder is too thin for further use.

Every article in this number of *Club Life*, except the ones which are furnished by correspondents, has been set up through the

medium of the phonograph, the reportorial force having first dictated the matter to the phonograph, after which it is set up as in the manner described above. This we intend to carry out fully in the future, which will no doubt aid materially in making the contents of the paper particularly bright.

MARK TWAIN LISTENS TO A SERMON DELIVERED 450 MILES AWAY.

The Reverend Thomas K. Beecher, at the Park Church, preached a sermon on the life of the late Mrs. Olivia Langdon, mother of Mrs. Samuel L. Clemens, of Hartford, Conn. It was impossible for Mr. and Mrs. Clemens to be present, but their house in Hartford was connected with the church here by long-distance telephone, the receiver being placed on the pulpit and hidden in a bank of flowers. The line went by Syracuse, Albany, and Springfield, to Hartford, a distance of four hundred and fifty miles, and worked very successfully, the entire service being very plainly heard in Mr. Clemens's residence in Hartford. A number of Mr. Beecher's friends in Buffalo heard his sermon in the same way.

THE INDUSTRIAL EXPOSITION HELD IN PITTSBURG, PA., BEGINNING SEPT. 2.

The yearly Industrial Exposition will be held in Pittsburg, Pa., opening on September 2d. All of the principal electrical companies will have exhibits. The Westinghouse Manufacturing Company will furnish lights for the entire Exposition, and the Thompson Houston Company will furnish the power. The Electrical Supply Company, of Pittsburg, will also be represented. The Western Pennsylvania Phonograph Company will make a large and interesting exhibit of phonographs and graphophones, and we have no doubt that this display will prove one of the most attractive features of the Exposition.

This company is also making an innovation in the automatic phonograph by using a miniature lamp which is run by a supplementary battery, and is very successful. The lamp lights up while the piece is being played, and at the end it is put out. This is an automatic arrangement entirely.

A ROAR FROM A LOCAL AGENT.



ALARGE lion once lived in a forest near a village, and although he had been seen several times, he had never been known to roar, and consequently seemed but an aged lion to the villagers, who, without a thought of fear, traveled through the forest at any time of day. A little wolf lived in the same wood, and nightly made the air resound with loud and hideous howls. The villagers never went into the wood after dark.

Well, what of the above? It simply illustrates the fact that a "noise in the world" is of much greater consequence than people are willing to acknowledge. The lion was never thought of because never heard. The one little wolf, because of his nightly concerts, was always in the thoughts of the villagers, and many were the speculations about the firesides as to how many wolves there were, how large, and what the chances would be if one was overtaken by them.

While we appreciate the consideration of little children who are willing to be seen and not heard, we do love to bestow our favors and our patronage upon those fellow-men whose wares are heralded from one end of the earth to the other as "the only" and "the best." It is said the American people like to be humbugged. If isn't that; but they so much admire the bold and unique claims of the wide-awake advertiser that they order his wares just to see what the man really has. If it is what they want, well and good; if not, their curiosity has been satisfied, and they are content.

If articles of mediocre merit are successfully introduced by being well advertised, is it reasonable to suppose that anything of extraordinary merit will, by the same means of introduction, be any the less successful?

Advertise the phonograph!

A new type-writer is being introduced. The company is spending thousands upon thousands of dollars in judiciously advertising it in the leading publications. They must make a noise about their machine, or people will never know of its existence, no matter how excellent it is.

Advertise the phonograph!

THE PHONOGRAM does well to call a halt on the prominence given the amusement feature of the phonograph at the expense of its business utility being lost sight of. And yet at the present time this can be excused in a measure. The public generally has not the faintest conception of the capabilities of the phonograph. The local agent finds that he must depend, for carrying on his business, upon the income from the amusement afforded by the phonograph. The rains must fall before the sun can coax the grass to grow, and the local agent finds that the people must be educated in phonography (if I may use the word), that they must have enlightenment from other sources, before he can prevail with the business phonograph.

Advertise the business phonograph!

The parent company and state companies can hardly expect the local agent to spend all he makes, and more, too, in vain endeavors to overcome, single-handed, the ignorance regarding the business phonograph. Live agents want to work for live companies. They will not waste time, money, and energy upon a business not properly supported by the home company.

Advertise the business phonograph!

If the parent company desires the su-

premiacy of the business phonograph, they must advertise it. An advertising bureau could be established at the New York office and conducted at small expense, while the benefits to the phonograph business all over the country would be of wonderful value. Matter of general interest regarding the business uses of the phonograph could be prepared and furnished publications which would willingly print it as news matter, without charge, if properly approached. The writer prepared a column of matter regarding the phonograph and sent it to the editor of a daily paper, who printed it and *asked for more*. Clippings from the press throughout the country could be sent in by local agents, and they in turn supplied with fresh readable matter for use in their home papers. A first-class article regarding the phonograph, particularly its business utility, could be placed in the prominent periodicals, and some of their valuable advertising space should be taken for the phonograph.

Scores of ways could be utilized in bringing the phonograph to notice through the public press. THE PHONOGRAM is assisting materially in diffusing much needed knowledge regarding this wonderful machine, but millions of business men can only be reached through the medium of their favorite magazine or paper.

Advertise the business phonograph. Advertise it by a systematic application of brains and money, to the one idea of forcing the practical utility of the business machine upon the minds of the business men.

The money expended will be but "bread upon the waters," and it is safe to say the business phonograph will find its place in the business world with a celerity that will astonish its promoters. If the phonograph is not properly advertised, it will be like the lion that never roared; the average business man will not think or care anything about it, because he will not know anything about it.

A PHONOGRAM FROM THE RESIDENT CORRESPONDENT OF THE INTERNATIONAL TELEGRAM COMPANY.

BY GRANTHAM G. BAIN.

Before the phonograph was perfected I used the graphophone for a long time, doing the dictation at my room at night, and having the work transcribed by my operator the following day. At that time I was busily engaged in news work during the greater part of the day, and my special writing was necessarily done at night. It was not practicable to have a stenographer at my room, especially as my work was done at intervals, and much of it was done at midnight. My graphophone was always at hand, and, coming to my room at night with a good story which I had picked up during the day, or with the ideas for a special article which I had developed at odd moments, I could sit down at the machine and reel off a thousand words or so in very quick time. Frequently I would sit at the graphophone until I felt sleepy, and stopping in the middle of a paragraph, would take up the thread of my story the next day. During that time I accomplished more than I had ever done dictating to a stenographer or to the type-writer direct. I did several magazine articles and a large amount of special newspaper work with the aid of the graphophone, and found with that instrument the number of mistakes in transcription was no greater than was made by an operator taking dictation direct on the type-writer.

I find the phonograph in many ways much more useful than the graphophone, though I will always have a lingering fondness for the old machine. I now keep a phonograph in my office, but I will have to put one in my room before long. Working down-town at night, as I do rather from force of habit than from any necessity, I find that the phonograph answers the same purpose in my office that it once did in my room. I think almost every newspaper writer will admit that there is no better

time for his work than the night hours, when he is reasonably sure to be free from interruption; when there is no call for dinner or supper to interrupt him, no engagement to keep, and no necessity, therefore, for constantly consulting the clock. It is not convenient to have a stenographer with me at night, and, besides, the presence of a stenographer is in itself embarrassing. In spite of many years' experience of writing in the offices of daily newspapers, with the click of the telegraph instrument, the hurry of noisy feet, and the continual hum and clatter of conversation all about me, I find that my best work is done when I am alone. So I sit down at night in front of my phonograph, with my notes before me, and fill up cylinders until my work is completed, or until I am tired enough to go home to bed. The next morning when I reach my office, after a late breakfast, the transcription of my dictation is lying on my desk ready for revision. So simple is the operation of the phonograph, and so accurate is its work, that I have taught the use of my machine in ten minutes to a type-writer operator sixteen years old, and in the same evening have received from him sheet after sheet of flawless copy.

The phonograph has lessened my hours of labor greatly and increased my facilities for work. Some people find difficulty in dictating. To any one who can dictate, however, or who finds it possible to use a stenographer, a phonograph would represent the saving of both time and money.

A SIMPLE WAY OF OVERCOMING THE LEAKAGE IN SMALL CELLS OF GALVANIC BATTERIES.

Mr. J. R. Hart, of New York City, has applied for and received a patent to prevent the leakage of the exciting fluid in cells. There are cells manufactured liquid-tight, but unfortunately the hermetic sealing provided for prevents the escape of the gases of decomposition, and

the cells burst, permitting the escape of the liquid, thereby damaging the apparatus or furniture.

Mr. Hart's patent overcomes this objection, and is thus described: A hard rubber case is lined with zinc, and a stem of chloride of silver is hung from a wooden or rubber stopper. A jelly-like composition is used as an excitant. The stopper is perforated with openings which are sealed by a soft rubber washer, thus permitting the gas to escape when pressure is exerted, the elasticity of the washer again sealing the cell and preventing escape of liquid or moisture, and preventing entrance of dust.

AGENTS OF THE NORTH AMERICAN PHONOGRAPH COMPANY IN CANADA.

Messrs. Holland Bros. & Young will have a complete display at the Montreal Convention.

The phonograph will be exhibited practically for the commercial world, and visitors will also have an opportunity to hear phonographic music, such as solos, quartets, and band music by the most distinguished musicians.

There is no doubt that the phonograph will be the chief attraction for the Canadians. This instrument has only lately been introduced into Canada, and, as it is for sale, there will probably be a great demand for it.

A number of long-distance telephones will also be connected with the phonograph, which will prove an additional attraction.

THE PHONOGRAM will also be in demand, and an extra edition of the magazine will be issued for this purpose.

WE WILL WRITE AND REFER YOU.

We have a great many inquiries from all over the country, asking us to state through the columns of THE PHONOGRAM the best and latest attachments for the phonograph, and prices of same, our opinion as to the life of storage and primary batteries, what are the best for running the phonograph, what other power is employed; also inquiries as to the newest and best typewriters and type-writer supplies. We will answer through the mails, giving the names and addresses of the best, in our opinion, free of charge.



THE NATURE OF ELECTRICITY.

Continued.

BY ALEXANDER JAY WURTS.

II.



ELECTRICITY, being a form of energy, is not a tangible thing that we can see, touch, or weigh, but a condition of matter which, like heat and other forms of energy, we recognize by effects. Heat is known by the melting of metals, generation of steam, the sensation of heat, etc. Similarly, the presence of the electric form of energy is recognized by its well-known effects.

We can now resolve the various forms of energy into two classes, namely, those which deal with the condition of a mass of matter taken as a whole, such as the moving train and falling stone, and those which deal with the condition of a mass as regards its molecules, such as heat. Electricity, light, chemical affinity, and others belong

to this latter class. A study, therefore, of the nature of electrical energy means a study of molecules and the construction of matter.

Modern researches tend to show that electricity, like heat and light, is a molecular motion. Those three energies, then, are of the same class, but different in form—that is, each one is a molecular vibration having characteristics peculiar to itself. The molecular vibrations of light are readily transmitted through the air, and not through the metals, whereas it is the reverse with electricity. Perhaps the following will assist the imagination a little on this point: All screws may be said to belong to the same class of apparatus, but all screws are not alike. Each kind of screw has characteristics peculiar to itself, so that one screw will readily penetrate water, but not wood; another iron, but not water. In other words, a screw, to cut its own thread, must be adapted to the substance through which it is intended to cut. And yet heat,

light, and electricity are so closely related that it seems almost as though they were one and the same molecular motion. It is no more possible to separate heat from electricity than it is to separate friction from the advancing screw. The instances are also many where heat, light, and electricity are developed from the same cause, at the same time, and on the same bodies. The arc and incandescent lamps are familiar examples. In the thermo-electric pile heat energy is directly transformed into electric energy. In every electric circuit the reverse of this is found.

Light and electric vibrations travel with inconceivable velocity. Many more such striking similarities between those forms of energy might be cited, but if this will suffice, let us review our ground a little.

We have stated that energy is a condition of matter having power to do work, that matter is supposed to consist of minute particles, called molecules, that light and electricity are forms of energy, and that those forms belong to that class known as molecular motion. Now, energy being a certain condition of matter—in other words, matter being a necessity to the existence and transmission of energy—*how is energy transmitted from the sun to the earth across the interplanetary spaces?* This is the most important question in the study of electricity. Could we but answer this with the certainty that comes from actual knowledge, no doubt all other problems relating to molecular forces and the construction of matter would become easy of solution.

To answer the above question an assumption is necessary, and a very unsatisfactory one, too, in that it presupposes the necessity of its existence. The interplanetary spaces and the spaces between the molecules of ordinary matter are supposed to be filled with a very thin and subtle fluid called ether. This ether, then, is the assumed bridge over which energy is transmitted in a vibratory form from the sun to the earth. These vibrations may be propagated in various ways. To illustrate: If we knock two stones together under water, the sound vibrations will be propagated a great distance without any transmission of matter. If we drop a stone in the water, vibrations, visible to the eye, will be set up; which will widen out in concentric circles. If we strike any part of a

long, horizontal rope, vibrations will be set up in the rope which will travel throughout its entire length.

THE MONTREAL ELECTRIC LIGHT CONVENTION.

The Windsor Hotel has been selected as the head-quarters of the National Electric Light Association during the coming convention, to be held at Montreal, beginning September 7th. The spacious Windsor Hall has been selected to hold meetings.

The sessions of the convention will be held from ten o'clock in the morning until two in the afternoon, final adjournment being at the latter hour. On the 8th of September reports of the following committees will be read and discussed:

1. Committee on Relations of Manufacturing and Central Station Companies.
2. Committee on Data.
3. Committee on World's Columbian Fair.
4. Committee on Legislation.
5. Committee on Underground Conduits and Conductors.
6. Committee on Safe Wiring.

On the 9th of September the following papers will be read and discussed:

Discussion of T. Carpenter Smith's paper, read at the Providence convention, on the "Distribution and Care of Alternating Currents."

W. C. Warner—"Various Forms of Carbons for Use in Arc Lamps."

Captain Eugene Griffin—"Three Years' Developments of Electric Railways."

H. Ward Leonard—"A Central Station Combining the Advantages of both Continuous and Alternating Current Systems."

On the 10th of September the reading and discussion of the following papers will take place:

James L. Ayer—"Some Details of the Care and Management of an Arc-Lighting Station, as Practiced in the Municipality of St. Louis."

C. J. Field—Subject to be announced.

George A. Redmon—"Central Station Lighting by Water Power."

J. J. Burleigh—"Uniformity of Method in Keeping Central Station Accounts."

An executive session will be held on the 10th of September, to elect three new members of the Executive Committee and to name the place of the next meeting.



MUSICAL RECORDS SAMPLED BY TELEPHONE.

EXPERIMENTS WITH THE PHONOGRAPH OVER TELEPHONE WIRES.

Recently Mr. E. R. Magie, the Indiana manager for the Edison Phonograph Company, assisted by Dr. J. B. Morrison and the Central Telephone Company, made an interesting test of the phonograph in connection with the telephone. A phonograph was set up in Dr. Morrison's residence in the northern part of the city. Mr. Magie was at the telephone in the New Denison Hotel. Only a few experiments were made there when the attention of the manager and employees at the telephone exchange was attracted. Mr. Magie then went over to the exchange, and to make the experiments more interesting, connection was made with Shelbyville, a distance of over thirty miles. Several different record cylinders were placed on the phonograph and turned out by Dr. Morrison at his residence, and listened to by parties here and also in Shelbyville.

Among other records sent was that of a cornet solo played in Cincinnati last summer. This was heard quite distinctly in Shelbyville, from the announcement, "Cornet solo, 'The Rat Charmer of

Hamlin,' as played by Fred Russell, the Chinese impersonator, in the laboratory of Love & Co., Cincinnati, O.," to the applause and cheers which followed the music.

Last May, Miss Mary Howe, one of the sweetest and most popular singers at the May Festival, as a personal favor to Dr. Morrison, sung "The Maid of Dundee," and allowed the doctor to take a phonograph record. This, also, was sent to Shelbyville, and while the sweet singer's voice was heard in the two cities, she herself was many miles away. Another record sent was that of a song by a local quartet, composed of Messrs. Butler, Brown, Woodward and Thompson. This record was taken by Mr. Magie last winter under rather unfavorable circumstances, yet it was considered good. A part of Dr. Buchtel's phonograph address to his Denver Sunday-school, of which mention has already been made in THE PHONOGRAM, was also sent.

The Telephone Company has an extra good copper wire connecting Shelbyville with Indianapolis, and the subscribers to the Shelbyville exchange could receive the

records simultaneously with the Indianapolis subscribers.

When Mr. Magie gets the state organized and a number of phonographs out, he thinks it will be practicable as well as novel to send samples of his musical records by telephone.

TO GUARANTEE ACCUMULATORS.

The Electric Construction Corporation (London) has just organized, with a view to guarantee the maintenance of its accumulators for a specified term. The plan will be in the nature of insurance, the company agreeing for a certain rate to guarantee the life of the batteries a certain length of time, and to maintain it. A force of competent men will be employed to inspect periodically the various plants insured, and to keep same in working order. There is a similar company in operation in the United States. This company at first guaranteed the life of its accumulators for two years, and also a recovery of eighty per cent. of the current with which they were charged. Parties purchasing an accumulator plant may insure the plates of their batteries by paying annually a certain percentage on the original cost of the plant, and in consideration of the payment the company will send an inspector periodically and replace any defective plates with new ones. This arrangement works well all around, as the owner knows how much he has to expend, and the company have the satisfaction of knowing that their cells are properly attended to.

The deterioration in accumulators, when care is taken, does not amount to more than five per cent. per annum, and in many cases not as much as two per cent. Accumulators really need intelligent care. When this is given, very little difficulty is experienced.

Mr. A. O. Tate, in his speech to the National Phonograph Convention, held in this city in June last, says:

"I think that the companies can find batteries that will give the life that they require. I believe that it can be done with storage cells, if you prefer to use storage to primary batteries, but as to the deterioration on a storage cell, I can not give definite information. I should like to see experimental work concentrated at some one point, because I think it would save a tremendous amount of expense."

HOW THE RAIN WAS BROUGHT.

The rainfall expedition sent out by the United States Agricultural Department, under the charge of Mr. R. G. Dryenforth, reported its first success in Texas. The apparatus was set up immediately upon arrival, and a number of test explosions were caused.

The explosions of rackarock bombs caused great concussion, and were heard and felt distinctly at a great distance from the field of operation. The explosives were all fired by means of electric batteries. Heavy clouds began to form and gather over the horizon about ten hours after the explosions, and seventeen hours after the operation the rain began to fall in copious quantities. The rain fell directly over the ranch and extended over a space of one thousand square miles, but at the ranch the rain continued to fall for six hours.

All the apparatus is now in position. Test trials are being made with great success.

PHONOGRAPH AND TELEPHONE.

The phonograph has been applied to the telephone, so that any conversation coming over the wires during the day may be readily reproduced.

ASHEVILLE, N. C.—It is reported that a party of New York capitalists will build an electric railroad from Asheville to Rutherfordton, N. C., a distance of forty miles. The road will run across the Blue Ridge Mountains and through the famous Hickory Nut Gap. If the road is constructed it will be one of the longest electric railroads in the world. Mr. Reynolds, the president, has applied for the right of way. Water power for running the dynamos will be furnished from the Chimney Rock Falls. V. N. B.



***2**

R. S. A. Dean, of Minneapolis, Minn., comes forward with a type-writing machine that will "break the record." It will do everything any other type-writer will do, and a great deal more besides. Mr. Dean's type-writer will keep books, and here is where the wonder is. The type arms strike down instead of up, and, it is claimed, with complete accuracy on any book. The machine will do the work of three ordinary copyists. Mr. Dean has been at work on this machine for two years. He got his real inspirations for the work in a gambling-room in Helena, where the faro-box delivers its card face upward and level.

Mr. Dean at once went to study the box instead of the game, and the result is his type-writer.

The sale of type-writers began in 1881, the Remington being the first placed on the market. It was an experiment, and only ten machines were built. The average business man looked at it from a distance, with the thought that such things could

only be a luxury, and would never come into general use.

But their practicability was soon demonstrated, and as a result one hundred thousand machines have been sold in ten years, and the business is still in its infancy. Mr. Dean has been offered ten thousand dollars spot cash and royalty if he would part with his model in its imperfect condition. It is a little wonder. The key-board is the same as the present machines. This does away with any objection that operators will have to learn it.

The type mechanism is the same as in these machines, except that the arms strike down instead of up. The speed is the same. The manifold is claimed to be superior, as it does away with the copy-press entirely. Its great merit is that it is a book machine. It will keep the accounts in books with the same facility that it will write a letter, and it will write on two pages of the book, keeping in perfect alignment, and with perfect accuracy. This fact alone, the inventor claims, will give him a monopoly of one hundred thousand machines. It will be needed in the county of ~~where~~ a large amount of copying is done. The patent is called a foundation patent, insuring a clean sweep from infringements.

The machine will write in any sized book.

a line of two hundred and forty characters, while no type-writer will yet write over seventy. Insurance offices will find it a blessing, as there is much trouble in writing the terms of the policy on a small slip and then pasting it on the policy. This machine also claims to do away with the letter-copy press and its water bath. The machine does the copying, and the copy is as clear as the original. These are the new points claimed for it: First, the paper always presents a flat surface, and the writing is in sight of the operator; second, the operator controls the space between lines, and can vary anywhere from one quarter to one inch; third, it will write two hundred and seventy letters on any thickness of paper or pasteboard; fourth, it will cost no more money than the machines now in the market.

One hundred machines will be built, and it is calculated that, if well distributed, will create a large demand for them.

ELECTRICAL PATENTS FOR AUGUST.

Reported for THE PHONOGRAM.

ISSUED AUGUST 4, 1891.

No. 457,298—Type-writing machine. George C. Blickensderfer, Stamford, Conn., assignor to Blickensderfer Manufacturing Co., New York, N. Y.

No. 457,333—Type-writing machine. Same inventor.

No. 457,258—Type-writing machine. James D. Dougherty, Kittanning, Pa.

No. 457,308—Type-writing machine. Fred. A. Dolph, Aurora, Ill.

No. 457,088—Type-writing machine. Albert L. Mariner, West Medford, assignor to the Pope Manufacturing Co., Boston, Mass.

ISSUED AUGUST 11, 1891.

No. 457,657—Wind apparatus for generating electricity and charging secondary batteries. James M. Mitchell, Lawrenceville, Ga.

No. 457,553—Electrode for secondary batteries. Leonard Paget, New York, N. Y.

No. 457,344—Smoothing tool for phonogram blanks. Thomas A. Edison, Llewellyn Park, N. J.

No. 457,477—Automatic telephone system. Hammond V. Hayes, Cambridge, and Henry D. Sears, Lynn, Mass., assignors to the Am. Bell Telephone Co., Boston, Mass.

No. 457,336—Type-writing machine. John Becker, Newton, Mass., and George Becker, New York, N. Y.

No. 457,757—Type-writing machine. Chris. S. Booth, Camp Point, Ill., assignor to Lyman C. Smith, Syracuse, N. Y.

No. 457,563—Type-writing machine. Bernard Mettz, New York, N. Y.

No. 457,673—Type-writing machine. Wilber S. Scudder, Syracuse, N. Y.

No. 457,620—Cleaning attachment for type-writing machines. Augustus Pursell, Williamsport, Pa.

No. 457,684—Type-cleaning brush for type-writing machines. Fred. Van Fleet, Williamsport, Pa.

ISSUED AUGUST 18, 1891.

No. 457,880—Plate for secondary batteries. Albert F. Madden, Newark, N. J.

No. 457,840—Type-writing machine. Levi J. Odell, Lake Geneva, Wis., assignor to Odell Type-writing Co., Chicago, Ill.

No. 457,903—Type-writing machine. John N. Maskelyne and John Maskelyne, Jr., London, Eng.

No. 458,111—Paper-guide for type-writing machines. Joseph H. Osgood, Peabody, Mass.

ISSUED AUGUST 25, 1891.

No. 448,424—Secondary battery. Orazio Lugo, New York, N. Y.

No. 458,425—Secondary battery. Same inventor.

No. 458,479—Telephone. Eloy Noriega, Mexico, Mexico.

No. 458,260—Type-writing machine. James B. Hammond, New York, N. Y.

No. 458,446—Cabinet for type-writers, etc. William J. Elsom, Cortland, N. Y.

No. 458,522—Type-writing machine. John T. Davis, St. Louis, Mo.

No. 458,241—Type-writing machine. Charles Spiro, New York, N. Y.

INGENIOUS SENTENCES.

The people who sell type-writers and teach their customers how to use them have bothered their brains to evolve practice sentences which will contain all the letters in the alphabet. Here are a couple of ingenious sentences: "Pack my box with five dozen liquor-jugs." "Jack quickly extemporized the five tow-bags." The first of these sentences is remarkable as containing every letter in the alphabet and only five unnecessary characters. It is curious that not a single consonant is repeated in the sentence. The five unnecessary characters are *o, i, e, o, u*, all vowels, and all the vowels in the alphabet except *a*. *O* is the only letter repeated twice. The second sentence contains twelve unnecessary characters, four vowels and eight consonants.

Phono-Chat.

ATTENTION, PARENTS!—"Daisy," said a Washington father to his twelve-year-old daughter, who was indulging in a noisy and passionate crying spell, "come at once to the library and stand before the phonograph." The child was compelled to obey; her lamentations were duly recorded, and when she ceased they were reproduced several times for her benefit. The punishment, though novel, was highly effective.

One of the envoys of King Gungumhama fell nearly dead from fright at the Dorchester House, London, when, speaking into a phonograph, he heard his own voice reproduced by the instrument. It was some time before he gained courage to ask questions from the "witch doctor" which he supposed was concealed in the phonograph. He proposed to silence the witch by stuffing frogs' legs and other charms into the instrument, and when dissuaded from this, remarked that he could tell no lies, as all his words were recorded.

In order to test the capacity of a cylinder on a phonograph, Mr. F. G. Frelinghuysen, President of the New Jersey Phonograph Company, read from a newspaper, and in nine minutes and fifty seconds had recorded distinctly two thousand words.

The mailing cylinder will require eight minutes' dictation to fill it, and will contain almost one thousand words. This cylinder is provided with mailing case, and will require two-cent postage for transportation in mail.

At the Industrial Exposition to be held in Pittsburg on September 2d, the enterprising officers of the Western Pennsylvania Phonograph Company propose to have two phonographs on exhibition for business purposes only. The operator will transcribe any matter which may be dictated by visitors to the exposition, thus showing the practical uses of the instrument.

THE PHONOGRAM will also be distributed to visitors. The Western Pennsylvania Phonograph Company have bound copies of THE PHONOGRAM in self-binders, and have placed them in all the large libraries of Pittsburg, as well as in the Press Club.

This company is making substantial progress in placing the phonograph in commercial houses. They have placed one lately in the Curry Uni-

versity, one of the largest institutions of learning in the western part of Pennsylvania.

The New England Phonograph Company use a storage battery which they find gives very good satisfaction, perhaps as much so as any battery used.

The treadle phonographs are leased, and then only in out-of-the-way country places where batteries can not be used.

So far the receipts from the beach season, which is not yet closed, have greatly increased over those of last year.

In some of the most out-of-the-way places where it is difficult to get direct communication by express, or it has to pass through one or two expresses, and there is no electric light plant in the vicinity for recharging batteries, the Edison-Lolande Battery has been used with very good success, the company using the largest cell of "K" type. It gives much satisfaction.

Mr. Mervin E. Lyle, of New York City, who has been interested financially in the Columbia Phonograph Company from its organization, has now been engaged by the company, and will begin service in Baltimore at once. Mr. Lyle is a salesman of nearly fifteen years' experience, and it is expected his work will largely increase the company's Baltimore business.

Mr. Cook, who has charge of the phonographs throughout the city of Cedar Rapids, Iowa, has the thanks of the *Gazette* for some sweet music transmitted by telephone from a phonograph at Walker, twenty-five miles away. He attached the rubber tube leading from the phonograph to the transmitter of the telephone, and then rang up 152, the *Gazette's* number. Several fine pieces were pleasingly rendered, and were apparently as distinctly heard as if the phonograph were in our office. It was also distinctly heard at Independence and Waterloo, thirty-nine and fifty-three miles from this city.

In an out-of-the-way corner of a Boston graveyard stands a brown board showing the marks of age and neglect. It bears the inscription: "Sacred to the memory of Eben Harvey, who departed this life suddenly and unexpectedly by a cow kicking him on the 14th of September, 1853. Well done, thou good and faithful servant."

Authors and Publishers.

GLEANINGS FROM L'ELECTRICIEN.

From the last number of this noteworthy review we learn that at the session of the Association of Civil Engineers, of London, held May 5th, 1891, many experiments in the lighting of railroad trains were reported, and careful statistics as to the *modus operandi* of each agent employed in the various systems were furnished. The general conclusion reached is that lighting by electricity is not only more convenient and less costly than other methods, but that the light is more efficient, and safer. This opinion tallies with the statement of Mr. Edison, who declares that the present year will witness the introduction of a mode of lighting and heating by electricity which, for a house of moderate size, will cost but sixty cents a year.

The "Chronique" of this periodical announces that the French Association for the Advancement of Science will hold its next session at Marseilles, from the 17th to the 24th of September. The communications will comprise, among others, one upon the nature of electrical discharges and their vortices, with photographs produced by the discharges themselves.

A contributor, Mon. G. M. Jacques, enters into a disquisition upon the kinetograph of Mr. Edison. He says researches of a similar character with those pursued by Mr. Edison had been previously made by M. Marey, in France, and M. Anschütz, in Germany; and an apparatus identical in principle has been invented by Mr. Friese Greene, of America. But Mr. Edison affirms that his gives results much more perfect than those of his forerunners—an affirmation which may be accepted from a man of his ability, disposing of means which are unique in the world, at his laboratory in Menlo Park.

Mr. Edison stated to the correspondent of the London *Times* that the cause of failure heretofore has been from want of rapidity in the execution of the series of impressions.

An article on "ozone, considered from a physiological and therapeutical point of view," tells us that this agent is one of the most powerful germicides known to man. When properly prepared, ozone may be administered to invalids who are consumptive and to young children with great advantage.

Professor Carhart's work on the care of primary batteries has just been published by Allen & Bacon, in Boston.

In theory the work deserves commendation.

Professor Carhart makes plain to the dullest the distinction between electro-motor force and potential. He also makes plain the importance of due allowance for the time constant of the circuit in all electrical calculations.

INQUIRIES.

YALE COLLEGE, *New Haven, Conn.*,

August 30, 1891.

To the Editor of THE PHONOGRAM:

DEAR SIR:

Can you inform me if there was any "talking machine" invented before the Edison Phonograph, and do you know where the original model of same is?

The original (?) models of the Edison Phonograph seem to be as numerous as Washington's servants. What authenticity is attached to the one in the Emery Arcade, Cincinnati?

Yours truly,

J. L. M.

Mr. Edison was the first to apply for a patent on talking machines, and his fundamental patents control the machines at this time.

Mr. Amden, President of the Ohio Phonograph Company, Cincinnati, can probably answer J. L. M.'s second question.

U. S. DEPARTMENT OF AGRICULTURE: Division of Chemistry.

WASHINGTON, D. C., Aug. 24, 1891.

E. D. EASTON, Esq.,

President Columbia Phonograph Company,
Washington, D. C.

DEAR SIR:

I find the phonograph invaluable, as I can dictate my correspondence on it, and the contents can be copied at the leisure of the typewriter. I find it especially valuable before and after office hours, when my stenographer is absent, and also for certain classes of abstracting, where I have to wait a long while in order to determine how to present in proper form any given paragraph. In such cases the phonograph is superior to a stenographer, because it is not wasting time during the time the abstracts are made.

I think the appreciation of the phonograph will increase with its use. I should hate to do without one.

I am, respectfully,

H. W. WILEY,
Chemist.

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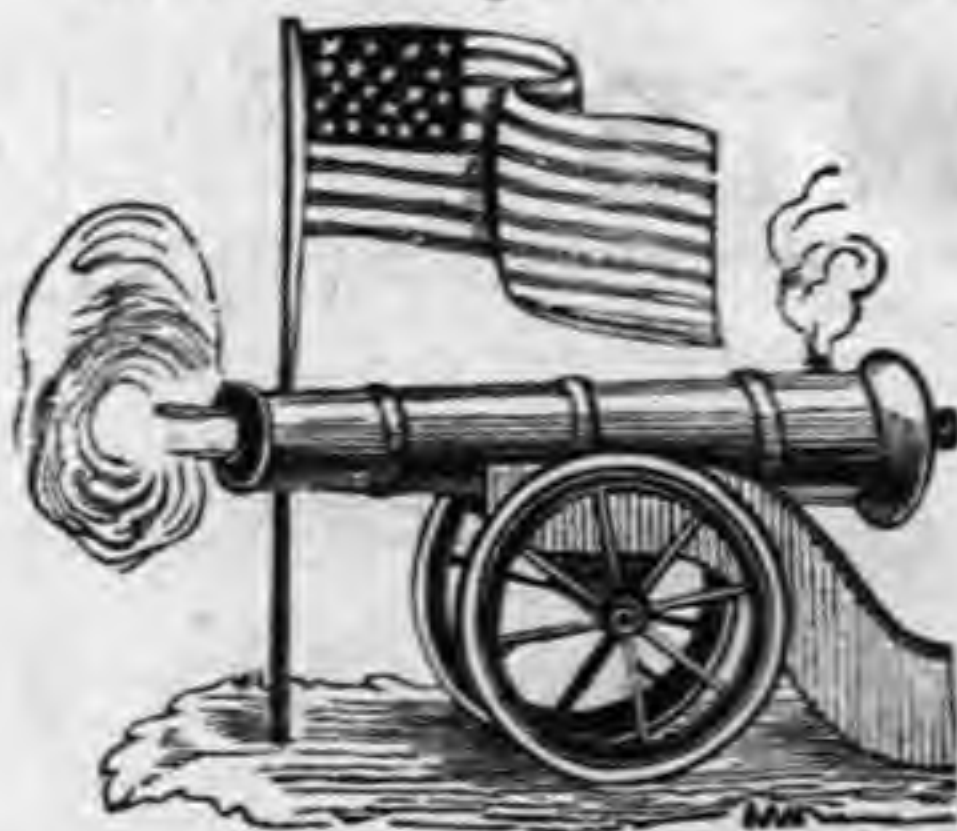
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Washington, D. C.
June 5th, 1891.

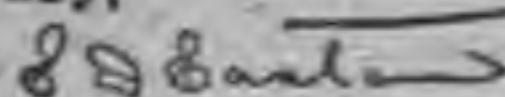
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New York City.

Dear Sir:-

I enclose copy of advertisement for June which kindly put on
a half page as before; and quote best special rates for page.

If this advertisement is as profitable, in proportion as the
last was we shall be encouraged to a still further expenditure of
printer's ink. Thus far we have positive evidence, in dollars and
cents, of the value of The Phonogram in a business way.

Yours truly,



President.

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